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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiroataka Kakita

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EXAMINER

MACAULEY, SHERIDAN R

ART UNIT

PAPER NUMBER

1651

MAIL DATE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,899	Applicant(s) KAKITA ET AL.	
	Examiner SHERIDAN R. MACAULEY	Art Unit 1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,7,8,10 and 12 is/are pending in the application.
4a) Of the above claim(s) 5,7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,10 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A response and amendment have been received and entered on November 18, 2008 and February 12, 2009. Claims 2, 4, 6, 9, 11 and 13 are cancelled. Claims 1, 3, 5, 7, 8, 10 and 12 are pending. Claims 5, 7 and 8 are withdrawn due to a previous requirement for restriction. Claims 1, 3, 10 and 12 are examined on the merits in this office action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on November 18, 2008 and February 12, 2009 have been entered.

Declaration under 37 CFR 1.132

The declaration under 37 CFR 1.132 filed November 18, 2008 is sufficient to overcome the rejection of the claims under 35 U.S.C. 102(b) based upon Hirotsuka et al. (Bulletin of the Society of Sea Water Science, Japan, 2000, 54:310-315) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hirotsuka (2000) in view of Hirotsuka (Heisei 10-12, Nendo Kagaku Gijutsu Sogo Kenkyu Itakuhi, Chiiki Sendo Kenkyu,

Kenkyu Seika Holokusho, Zaidan Hojin Kochiken Sangyo Shinko Center, 2001, 176-192), as set forth in the office action mailed on July 24, 2008.

Claim Objections

1. Claims 1, 3 and 12 are objected to because of the following informalities. It is recommended that the claims be amended as follows: The term "the genus of *Gracilaria* sp." should be amended to read "the genus of *Gracilaria*" or some other suitable term. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1, 3, 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. The term "detectable" in claim 1 is a relative term which renders the claim and its dependents indefinite. The term "detectable" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear how applicant intends for the gametophytes and tetrasporophytes to be detected in the claimed invention. For instance, it is unclear whether a strain wherein no female gametophytes may be detected microscopically but wherein such

gametophytes could be detected by molecular analysis would meet the limitation of the claim. Therefore, the metes and bounds of the claims would be unclear to one of ordinary skill in the art.

Claim Rejections - 35 USC § 101

5. Rejections under 35 USC 101 have been withdrawn due to amendment.

Claim Rejections - 35 USC § 102

6. Rejections under 35 USC 102 have been withdrawn due to the declaration under 37 CFR 1.132 received from applicant on November 18, 2008.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1, 3, 10 and 12 are rejected under 35 U.S.C. 103(a) as obvious over Hirota (Bulletin of the Society of Sea Water Science, Japan, 2000, 54:310-315, document previously cited; see USPTO translation, attached) in view of Chen et al. (US 3,879,890). The claims recite an immaturable unialgal culture strain derived from spores of a marine macroalga of red algae of the genus of *Gracilaria*, specifically *Gracilaria verrucosa*, *Gracilaria chorda*, or a subspecies thereof, having characteristics that no matured female gametophytes are detectable and only matured tetrasporophytes are detectable, said immaturable unialgal culture strain being obtained by the steps comprising: selectively collecting alga bodies, which have characteristics that no female gametophytes are detectable and only tetrasporophytes are detectable, from among matured bodies of marine macroalga of red algae growing in natural seawater area with intermixing of fresh water; washing the matured portions of the tetrasporophytes of the collected alga bodies with sterilized water or sterilized seawater;

keeping the matured portions standing to cause release of spores; and culturing the released alga spores in sterilized seawater. The claims further recite an alga body obtained by growing the immaturable unialgal culture strain according to claim 1, specifically wherein wherein the red alga belong to the genus of *Gracilaria*, specifically *Gracilaria verrucosa*, *Gracilaria chorda*, or a subspecies of either of the two species.

11. Hirotaka teaches the establishment of a unialgal culture strain of red alga of the species *Gracilaria chorda* by acquiring matured samples from *G. chorda* from an estuary in Japan and cultivating the spores that have been released from the samples (see English translation, abstract, pp. 4-5, section 2.1). Hirotaka teaches that the strains were collected by washing the matured portions of the samples with sterilized seawater, keeping the matured portions standing to cause release of spores, and culturing the released spores in sterile seawater (see English translation, pp. 4-5, section 2.1). The culture strain described by Hirotaka appears to have been isolated from the same source and using similar techniques as the claimed culture strain (see English translation, abstract). The reference does not specifically teach that the algal bodies are collected such that no female gametophytes are detectable and only tetrasporophytes are detectable.

12. Chen teaches a method of culturing red algae by separating gametophytes from tetrasporophytes (abstract, col. 1, lines 20-23). Chen teaches that the separation of the spores into gametophytes and tetrasporophytes allows for the maintenance of the alga at the selected stage of the life cycle (col. 2, lines 19-46).

13. At the time of the invention, the establishment of a unialgal culture strain of *G. chorda* possessing nearly all of the claimed characteristics was known, as taught by Hiroataka. It was further known that strains of red algae could be established and maintained at selected stages of the life cycle by separating the spores into gametophytes and tetrasporophytes, as taught by Chen. One of ordinary skill in the art would have been motivated to use the cultivation techniques taught by Chen to cultivate the strain of *G. chorda* taught by Hiroataka because the cultivation of red alga at certain stages of the life cycle was known to be desirable because it results in fewer post-harvest selection procedures, as taught by Chen (col. 2, lines 14-18). It was further known that the preservation of such an algal culture was desirable because Hiroataka teaches that methods should be used for the preservation of an algal culture (see English translation, p. 5, lines 5-7). One of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed unialgal strain using the teachings of the prior art because the genus *Gracilaria* was known in the art, as was the cultivation of the species *Gracilaria chorda*, as taught by Hiroataka, and cultivation of red algae using the techniques recited in the claims was known in the art, as taught by Chen and Hiroataka. It would therefore have been obvious to one of ordinary skill in the art to combine the teachings discussed above to arrive at the claimed invention.

14. Thus, the claimed invention as a whole was *prima facie* obvious over the combined teachings of the prior art.

Response to Arguments

15. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHERIDAN R. MACAULEY whose telephone number is (571)270-3056. The examiner can normally be reached on Mon-Thurs, 7:30AM-5:00PM EST, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SRM

/Ruth A. Davis/
Primary Examiner, Art Unit 1651